



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of :
Yoshiaki TOMOTAKE et al. : Docket No. 2000-1428A
Serial No. 09/673,217 : Group Art Unit 1774
Filed October 13, 2000 : Examiner L. Ferguson
INK JET RECORDING PAPER :

DECLARATION UNDER 37 CFR. 1.132

I, Yoshiaki TOMOTAKE, declare as follows:

I am one of the inventors of the above-identified application and am fully familiar with the subject matter and facts set forth therein.

I hold a Bachelor's degree in Polymer Chemistry from the Chemistry Department of Faculty of Engineering of Gunma University, and a Master's degree in Polymer Chemistry from Gunma University Graduate School in 1994.

From the time of my completion of the Graduate School down to the present (about 11 years), I have been employed by Tokushu Paper MFG. Co., Ltd. and have been engaged in research and development in novel and improved paper.

In the last 7 years, I have been engaged especially in coated and non-coated ink jet recording paper, so I am well acquainted with the technical knowledge of ink jet recording paper.

I have conducted the following experiments to investigate that ink coloring density of the coated ink jet recording paper of Akiya et al. (U.S. Patent No. 4758461) may

be improved or not, when mercerized pulp is mixed in the fibrous material of the substrate paper of Akiya et al.

PREPARATION OF SAMPLES TESTED

[SAMPLE 1] (Non-coated paper of the present invention)

The non-coated paper prepared by "Example 8" described in the present application was used.

<u>Ingredients</u>	<u>wt. cont. (%)</u>
• Mercerized pulp	45
"Sulfatate HJ"	
(by Rayonier Co., USA)	
• NBKP (not alkali-treated)	35
• LBKP (not alkali-treated)	20
Dry basis weight: 100 g/m ²	

[SAMPLE 2] (Coated paper of Akiya et al.)

The coating liquid having the following composition was coated on the substrate paper of SAMPLE 1 containing mercerized pulp to prepare coated paper of Akiya et al. The following coating liquid composition corresponds to the composition described in Table at the bottom of col. 6 of Akiya et al.

<u>Coating liquid composition</u>	<u>Parts by weight</u>	
• Synthetic silica	10	10
"Sylsilia 430(*)"		
(by Fuji Silysia Chemical Ltd.)		
• PVA-117(produced by Kuraray)	4	10
• Water	adjusted based on coating property	

Note: I was informed from Fuji Silysia Chemical Ltd.
(formerly Fuji Davison Chemical Ltd.) that
synthetic silica "Sylisia 430" is equivalent to
"Syloid 620" used in Akiya et al.

The substrate paper was subjected to coating on both
surfaces thereof by using roll coater. Therefore, the
coating amount on one surface is calculated by halving the
coating amount on both surfaces.

EVALUATION OF COLORING DENSITY

SAMPLES 1 and 2 were applied with solid printing by
each of mono-color inks of cyan, magenta and yellow ("BCI-21
Color", manufactured by Canon Inc.) and black ("BCI-21
Black", manufactured by Canon Inc.), respectively, by using
an ink jet printer ("BJF200" manufactured by Canon Inc.).
The coloring density of each of samples was measured four
times using a densitometer ("RD-1255" manufactured by
Macbeth Co.) and the average coloring density is shown in
Table.

MEASUREMENT OF LIQUID TRANSFER LENGTH BY BRISTOW' METHOD

Liquid transfer length of each of SAMPLES 1 and 2 was
measured by Bristow's method described on pages 13-14 of the
present specification at the moving speed of 5.0 mm/sec. The
results are shown in Table.

TABLE

	Coating amount on both surface (g/m ²)	Coating amount on one surface (g/m ²)	Concentration of solid in coating liquid (%)	Color density				Liquid transfer length (mm)
				Black	Yellow	Magenta	Cyan	
SAMPLE 1	0	0	-	1.26	1.21	1.26	1.23	12
SAMPLE 2 (Si/PVA =10/10)	2.5	1.25	1.0	1.25	1.20	1.22	1.21	18
	6	3.0	4.0	1.27	1.21	1.22	1.21	20
SAMPLE 2 (Si/PVA =10/4)	2.5	1.25	2.0	1.25	1.21	1.23	1.23	19
	6	3.0	5.0	1.27	1.22	1.21	1.23	20

CONCLUSION

The coloring density of SAMPLE 2 (coated paper of Akiya et al. in which mercerized pulp is mixed in the substrate paper) is not superior to that of SAMPLE 1 (non-coated paper of the present invention). Namely, the present invention can provide non-coated ink jet recording paper having the coloring density equivalent to that of the coated ink jet recording paper of Akiya et al.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Dated this

16 of September, 2005


Yoshiaki TOMOTAKE